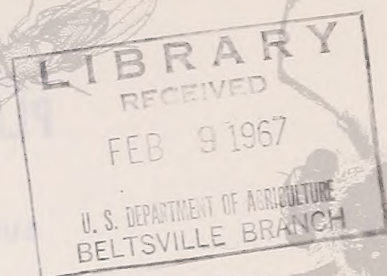


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February 3, 1967



Cooperative **ECONOMIC INSECT REPORT**

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearinghouse and does not assume responsibility for accuracy of the material.

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United States Department of Agriculture
Washington, D. C. 20250

Reports and inquiries pertaining to this release should be mailed to:

Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20782

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

GREEN PEACH APHID increasing slowly on sugarbeets and lettuce in Maricopa County, Arizona. (pp. 59, 60).

WINTER GRAIN MITE necessitated some control on wheat in 5 north-central Texas counties; conditions appear favorable for continued buildups. Also moderate on wheat in Jackson County, Oklahoma. (p. 59).

EGYPTIAN ALFALFA WEEVIL active earlier than normal in desert areas of California. (p. 59).

CATTLE LICE generally light in Iowa and Arkansas. (p. 61). No SCREW-WORM cases reported in United States since January 1, 1967. (p. 62).

Detection

For new county records see page 63.

Special Reports

Summary of Insect Conditions in Hawaii - 1966. (p. 64).

● Insect Detection in the United States in 1966. Twelve species new to Continental United States reported. (p. 67).

Reports in this issue are for week ending January 27 unless otherwise indicated.

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WEATHER BUREAU'S 30-DAY OUTLOOK

FEBRUARY 1967

The Weather Bureau's 30-day outlook calls for temperatures to average above seasonal normals over the western half of the Nation, while below normal averages are indicated for the Middle Atlantic States, the Ohio Valley and most of the South. In unspecified areas near normal temperatures are predicted. Precipitation is expected to exceed normal over the Pacific Northwest and the central Pacific coast, as well as over the southeastern quarter of the Nation and along the Middle Atlantic Coast. Subnormal totals are called for over the southern Rockies, the southern Plateau, western portions of the southern Plains and the Great Lakes region. Elsewhere near normal precipitation is expected.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the Weather Bureau. You can subscribe through the Superintendent of Documents, Washington, D. C. 20250. Price \$5.00 a year.

WEATHER OF THE WEEK ENDING JANUARY 30, 1967

HIGHLIGHTS: Continued mild, wet, and windy in the Northwest. Severe snowstorm Chicago area and Lower Michigan; heavy glaze storm, Illinois to Ohio.

PRECIPITATION: The stormy pattern which has continued in the Pacific Northwest for several weeks brought substantial rains along the Washington, Oregon, and California coast and heavy snow to the mountain areas, often accompanied by gale-force winds. A major storm at midweek buried portions of the central Great Plains and the Great Lakes region in deep snow. Depths reached 2 feet from northeastern Illinois across northern Indiana to central Lower Michigan, and gales to 50 m.p.h. piled the snow in drifts 12-15 feet deep. It was the heaviest snowfall of record at Chicago; traffic was halted, businesses closed. In some areas, schools were still closed on Monday, January 30. Numerous early season tornadoes occurred on 24th in Missouri, Iowa, and Illinois, with a few in other nearby States. At least Weather continued on page 62.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

CORN LEAF APHID (Rhopalosiphum maidis) - ARIZONA - Increasing slowly on small grains in Yuma, Maricopa and Pinal Counties. Warm, favorable climate could cause rapid increase. (Ariz. Coop. Sur.).

GREENBUG (Schizaphis graminum) - OKLAHOMA - Ranged 1-3 per linear foot in Wagoner County wheat. None found in Jackson or Kiowa Counties. (Okla. Coop. Sur.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - OKLAHOMA - Continues heavy in Mayes County alfalfa. Ranged 30-60 per 10 sweeps in Jackson County and 1-5 per square foot of crown in Wagoner County. (Okla. Coop. Sur.).

SMALL GRAINS

DESERT CORN FLEA BEETLE (Chaetocnema ectypa) - ARIZONA - Larvae light in small grains planted on sandy soils in Maricopa County. (Ariz. Coop. Sur.).

ENGLISH GRAIN APHID (Macrosiphum avenae) - MISSISSIPPI - Light on oats in Oktibbeha and Lowndes Counties; only wingless adults observed. (Dinkins).

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Noted in 10 of 17 fields checked in Denton, Collin, Tarrant, and Wise Counties; 5 of these fields heavy enough to warrant control. Conditions appear good for continued buildup. (Turney). OKLAHOMA - Ranged 10-50 per linear foot in Jackson County wheat. (Okla. Coop. Sur.).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - ARKANSAS - Square-foot samples of alfalfa stems yielded 100-200 eggs per square foot in northeast area; few counts as high as 300+ per square foot. (Miner).

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) - ARIZONA - Egg laying in alfalfa continues slow for this time of year in Yuma, Maricopa and Pinal Counties. (Ariz. Coop. Sur.). CALIFORNIA - Adults medium on weeds and grass in Oceanside, San Diego County. Weevil activity on alfalfa considerably earlier than normal in desert areas. (Cal. Coop. Rpt.).

PEA APHID (Acyrtosiphon pisum) - MISSISSIPPI - Wingless adults and nymphs light on alfalfa and vetch in Oktibbeha County. (Dinkins). NEW MEXICO - Light to moderate on alfalfa in Eddy and Chaves Counties. (Mathews).

SUGARBEETS

A LEAF ROLLER MOTH (Platynota stultana) - ARIZONA - Larvae light and scattered throughout sugarbeet fields in Maricopa County. (Ariz. Coop. Sur.).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Light, but increasing slowly on sugarbeets in Maricopa County. (Ariz. Coop. Sur.).

MISCELLANEOUS FIELD CROPS

DESERT CORN FLEA BEETLE (Chaetocnema ectypa) - ARIZONA - Larvae light in safflower on sandy soils in Maricopa County. (Ariz. Coop. Sur.).

COLE CROPS

GREEN PEACH APHID (Myzus persicae) - FLORIDA - Severely infested one-acre of rutabagas at Springhead, Hillsborough County. (Vaughan, Jan. 18).

POPLAR PETIOLE GALL APHID (Pemphigus populitransversus) - ALABAMA - Probably this species, light in five-acre field of maturing cabbage in Houston County; medium on root systems. (White, Farrar).

TURNIP APHID (Hydaphis pseudobrassicae) - MISSISSIPPI - Wingless adults and nymphs light on turnips in Oktibbeha County. (Dinkins).

CABBAGE APHID (Brevicoryne brassicae) - CALIFORNIA - Medium on collards in San Diego, San Diego County. (Cal. Coop. Rpt.).

GENERAL VEGETABLES

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Moderate; damaging and requiring controls on lettuce in Yuma County. (Ariz. Coop. Sur.).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Light; increasing slowly on lettuce in Maricopa County. (Ariz. Coop. Sur.).

DECIDUOUS FRUITS AND NUTS

SAN JOSE SCALE (Aspidiotus perniciosus) - FLORIDA - Severely infested bark of 20 pear nursery trees at Macclenny, Baker County. (Collins).

CITRUS

TEXAS CITRUS MITE (Eutetranychus banksi) - FLORIDA - Adults severe on 75 percent of 8,000 citrus nursery trees at Medulla, Polk County. (McLeod, Skipper).

CITRUS RED MITE (Panonychus citri) - FLORIDA - Nymphs and adults moderate on 10 percent of 1,000 satsuma nursery plants at Macclenny, Baker County. (Collins).

AN ARMORED SCALE (Unaspis citri) - FLORIDA - Crawlers and adults numerous on bark of sweet orange trees at nursery in Lake Wilson, Osceola County. (Ware, Jan. 16).

GRAY GARDEN SLUG (Deroceras reticulatum) - CALIFORNIA - Light in 20-acre citrus planting in Navalencia, Fresno County. (Cal. Coop. Rpt.).

OTHER TROP. & SUBTROP. FRUITS

SOUTHERN FIRE ANT (Solenopsis xyloni) - CALIFORNIA - Heavy on date fruit at date ranch in Calexico, Imperial County. (Cal. Coop. Rpt.).

ORNAMENTALS

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - OKLAHOMA - Pupae present in 80 percent of ornamental pines checked in Sequoyah State Park, Wagoner County. (Okla. Coop. Sur.).

APHIDS - CALIFORNIA - Aphis gossypii adults heavy on crassula at Escondido, San Diego County; beginning to show on citrus also. (Cal. Coop. Rpt.). OKLAHOMA - Cinara tujafilina continues problem on evergreens in several areas of State. (Okla. Coop. Sur.). ALABAMA - Eulachnus spp. continue to increase on pine needles in central section. Sooty mold developing on camellia foliage growing underneath pine trees. (McQueen).

WHITEFLIES - CALIFORNIA - Trialeurodes vaporariorum nymphs medium on chrysanthemums in Arroyo Grande, San Luis Obispo County. Aleurotrachelus jelinekii heavy on viburnum in Fresno, Fresno County. (Cal. Coop. Rpt.).

ARMORED SCALES - CALIFORNIA - Parlatoria oleae medium on rose bushes in Escondido, San Diego County. Aspidiotus hederæ heavy on ivy plants in Biggs, Butte County, and ivy and olive in Escondido. Very troublesome on ornamentals and shade trees during past year. (Cal. Coop. Rpt.). FLORIDA - Pseudaulacaspis pentagona moderate on several California privet plants at Sorrento, Lake County. (Simpson, Jan. 20). Crawlers and adults of Pinnaspis aspidistrae infested 50 percent of dwarf lily turf at nursery in Lakeland, Polk County. (Skipper, McLeod, Jan. 12). All stages of Pseudaonidia duplex infested few plants of ligustrum at Lake City, Columbia County. This is new county record. (Miller, Jan. 19).

AN ERIOPHYID MITE (Paracalacarus podocarpi) - FLORIDA - Adults infested 50 percent of 2,700 podocarpus plants at Bartow, Polk County. (Schmidt, Jan. 13).

NATIVE HOLLY LEAF MINER (Phytomyza ilicicola) - MARYLAND - Mines conspicuous on American hollies in Hyattsville, Prince Georges County. (U. Md., Ent. Dept.).

SPIDER MITES - CALIFORNIA - Nymphs and adults of Oligonychus ilicis heavy on azalea nursery stock at Cypress, Orange County. (Cal. Coop. Rpt.). FLORIDA - Eotetranychus sexmaculatus adults infested 600 azalea plants at Bartow, Polk County. (Schmidt, Jan. 13).

FOREST AND SHADE TREES

BROWN SOFT SCALE (Coccus hesperidum) - CALIFORNIA - Heavy on redbud trees in Arcata, Humboldt County. (Cal. Coop. Rpt.).

GIANT BARK APHID (Longistigma caryae) - TEXAS - Infesting shade trees in Beaumont, Jefferson County, and Orange, Orange County. (Kachtik, Weaver).

MAN AND ANIMALS

CATTLE LICE - IOWA - Adults and eggs of Haematopinus eurysternus very heavy on animal from herd in Marion County. Adults light on animals examined in other herds in Marion, Polk and Dallas Counties. Linognathus vituli adults averaged less than 5 per examination in Marion, Polk and Dallas Counties. Adults and eggs of Solenopotes capillatus light on examined cattle in Marion, Polk and Dallas Counties except for high counts about face and eyes of one animal. Bovicola bovis adults light in Knoxville area of Marion County and Granger area of Dallas and Polk Counties. Averaged less than 10 per examination area. (Iowa Ins. Sur.). ARKANSAS - Of 13 herds examined in northwest area, S. capillatus light in 3, moderate in one and moderate to heavy in another; 8 herds uninfested. (Lancaster, Simco).

HOG LOUSE (Haematopinus suis) - OKLAHOMA - Heavy on hogs in Marshall County. (Okla. Coop. Sur.).

SHAFT LOUSE (Menopon gallinae) - IOWA - Adults heavy on chickens in Warren County. Less than 5 per bird on 2 other flocks in county. (Iowa Ins. Sur.).

STABLE FLY (Stomoxys calcitrans) - MISSISSIPPI - Light on cattle in Oktibbeha County; 6 per animal observed on 5 Hereford bulls in stables. (Dinkins).

COMMON CATTLE GRUB (Hypoderma lineatum) - OKLAHOMA - Ranged 10-12 per head on cows in Tillman County; moderate in Mayes County. Adult activity noted January 22 in Ottawa County. (Okla. Coop. Sur.). ARKANSAS - Averaged 2.8, ranged 0-26, per head in 389 untreated cattle in northwest area. (Lancaster, Simco). IOWA - Fourth and fifth-stage larvae heavy; 32 on hide of yearling heifer at locker plant in Knoxville, Marion County; history of animal unknown. Cattle from 9 other farms showed no signs of grubs in backs. (Iowa Ins. Sur.).

MOSQUITOES - ALABAMA - Adults heavy and nuisance during evenings in central section. (Balch, Barwood, et al.). LOUISIANA - Larval collections in Jefferson Parish contained: Aedes vexans, Anopheles quadrimaculatus, Culex restuans, Culex salinarius, and Culiseta inornata. Culex salinarius and Culiseta inornata dominated light trap collections. Adult activity increased slightly throughout Jefferson Parish due to unseasonably warm weather. (Stokes).

SCREW-WORM (Cochliomyia hominivorax) - No cases reported in the U. S. January 22-28. Total of 66 cases reported in portion of Barrier Zone in Republic of Mexico January 15-21 as follows: Territorio sur de Baja California 35, Sonora 21, Chihuahua 1, Coahuila 0, Nuevo Leon 5, Tamaulipas 4. One case was reported from Mexico south of the Barrier Zone. Barrier Zone is area where eradication operations underway to prevent establishment of self-sustaining population in U. S. Sterile screw-worm flies released: Texas 14,768,000, Mexico 116,624,000. (Anim. Health Div.).

FEDERAL & STATE PLANT PROTECTION PROGRAMS

CARIBBEAN FRUIT FLY (Anastrepha suspensa) - FLORIDA - Few adults collected in traps at Cortez, Manatee County, St. Petersburg, Pinellas County, and Sarasota, Sarasota County, week ending January 20. Two larvae were collected from a tangerine at Lauderdale-by-the-Sea, Broward County. (Bickner et al.).

ORIENTAL FRUIT FLY (Dacus dorsalis) - CALIFORNIA - Intensive trapping underway in Orange County. Traps 100 per square mile in first radial half mile, 50 per square mile in next radial half mile, 20 per square mile in next mile, and 1-5 per square mile in balance of Orange County. In Los Angeles County, 50 traps per square mile being maintained in 2-square mile area. (Cal. Coop. Rpt.).

CITRUS WHITEFLY (Dialeurodes citri) - CALIFORNIA - Survey continued in Sacramento area, Sacramento County, with several new infestations recorded. Foul weather restricted inspection work. Spray treatment progressing in Fresno, Fresno County, and San Diego, San Diego County. (Cal. Coop. Rpt.).

PINK BOLLWORM (Pectinophora gossypiella) - MEXICO - Collected from gin trash at Caborca and Hermosillo, Sonora; these new county records. (PPC Mex. Reg., Nov. and Dec. Rpts.).

WHITE GARDEN SNAIL (Theba pisana) - CALIFORNIA - First treatment of 25-block area in Manhattan Beach, Los Angeles County, completed; second treatment will begin within 7 days. (Cal. Coop. Rpt.).

Weather continued from page 58.

5 persons were killed and there was considerable property damage. These tornadoes were about two months earlier than usual in that area. A glaze storm, the worst in many years, caused heavy damage to trees and power and communication lines from central Missouri to northwestern Ohio during the last half of the week. In Indiana, the ice accumulated to 0.75 inch, and the gale winds caused the cancellation of many activities. People were marooned in cars, trains, or homes without electricity. Stockmen were forced to haul water because electric pumps were inoperative.

TEMPERATURE: For the third consecutive week, mild weather continued west of the Continental Divide. East of the Divide, afternoon temperatures climbed to the 60's over most of the central Plains early in the week. In the East, Trenton, New Jersey, recorded the longest January mild spell in 101 years, with maximum temperatures ranging from 62° to 70° on the 23d to 26th. Arctic air from Canada rudely interrupted the unusual warmth in the Great Plains at midweek and in the East over the weekend. By the end of the week, however, warmer weather was returning to mid-America. (Summary supplied by Environmental Data Service, ESSA).

HAWAII INSECT REPORT

Pineapples - Adults of an ARMORED SCALE (*Melanaspis bromiliae*) light in pineapple fields on Lanai; few fruits infested. (Higa, Sakimura).

Tomatoes, Beans - SOUTHERN GREEN STINK BUG (*Nezara viridula*) increasing on Oahu; all stages medium to heavy on tomatoes at Koko Head and medium on yard-long beans in Waimanalo. Nymphs heavy on cheeseweed in Pearl City and on asystasia and cheeseweed in Ewa. (Nakao et al.). All stages of GREENHOUSE WHITEFLY (*Trialeurodes vaporariorum*) and CARMINE SPIDER MITE (*Tetranychus telarius*) medium to heavy on snap beans in Waianae, Oahu. (Yamamoto).

General Vegetables - SWEETPOTATO VINE BORER (*Omphisa anastomosalis*) heavy in sweet-potato plants at Koko Head and medium at Waimanalo, Oahu. (Suzukawa, Sato).

Fruit, Nut, Forest and Shade Trees - A BARK BEETLE (*Xylosandrus compactus*) heavy on meamehame (*Drypetes phyllanthoides*) and grapevines; light on *Entandra utile*, partridge-wood (*Andira inermis*), macadamia and Indian-rhododendron (*Melastoma malabathricum*) on Hawaii Island. All new host records. (Yoshioka). All stages of COCONUT LEAF ROLLER (*Hedylepta blackburni*) heavy along Wailua beach area on Kauai causing 50-75 percent defoliation. Parasites and predators at low levels. (Au). An outbreak of RED-BANDED THRIPS (*Selenothrips rubrocinctus*), apparently the heaviest for east Kauai, occurred on guava trees at Moloaa with up to 99 percent fruit damage. (Au).

Miscellaneous Insects - THREE-LINED POTATO BEETLE (*Lema trilineata*) adults medium on weeds on farm at Koko Head, Oahu. Numerous egg clusters observed on leaves. (Funasaki). Adults of a GRASSHOPPER (*Schistocerca vaga*) observed on slender mimosa, *Desmanthus virgatus* (a weed), in Waianae, Oahu. (Yamamoto).

INSECT DETECTION

New County Records

CAMPBOR SCALE (*Pseudaonidia duplex*) - FLORIDA - Collected from ligustrum at Lake City, Columbia County. (p. 61).

PINK BOLLWORM (*Pectinophora gossypiella*) - MEXICO - Collected from gin trash at Caborca and Sonora Counties, Sonora. (p. 62).

LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville - 1/24, 1 BL - Black cutworm (*Agrotis ipsilon*) 1, granulate cutworm (*Feltia subterranea*) 1, armyworm (*Pseudaletia unipuncta*) 2. Sanford - 1/17, 19-21, 1 BL - Black cutworm 7, granulate cutworm 33, yellow-striped armyworm (*Prodenia ornithogalli*) 4, cabbage looper (*Trichopusia ni*) 2. SOUTH CAROLINA - Charleston - 1/16-22, 1 BL, temp. 33-76°, no precip. - Armyworm 1, black cutworm 1. TEXAS - Brownsville - 1/14-20, 2 BL, temp. 79-40°, precip. 0.04 - Black cutworm 115, salt-marsh caterpillar (*Estigmene acrea*) 2, granulate cutworm 58, corn earworm (*Heliothis zea*) 4, variegated cutworm (*Peridroma saucia*) 22, yellow-striped armyworm 121, armyworm 198, beet armyworm (*Spodoptera exigua*) 23, cabbage looper 5.

SUMMARY OF INSECT CONDITIONS IN HAWAII - 1966

Highlights

There were 18 species reported for the first time in the State during 1966, while others that were recently established spread to other islands. Some important new pests to the State include: BERMUDAGRASS MITE (Aceria neocynodonis) heavy on Bermuda grass on Kauai and Oahu in November; CLOUDY-WINGED WHITEFLY (Dialeurodes citrifolii) medium on citrus on Hawaii Island in March; WESTERN FLOWER THRIPS (Frankliniella occidentalis) on carnations on Kauai and Maui, and on beans, tomatoes, ornamentals and other plants from October to December on Oahu; light numbers of adults and nymphs of a GRASSHOPPER (Trimerotropis pallidipennis) along road shoulders and irrigation ditches of sugarcane fields on Oahu in September.

Turf, Pastures

A BILLBUG (Sphenophorus venatus vestitus) was light and widespread on Kikuyu grass on Hawaii Island in September. By December, 10,000-15,000 acres were infested; also infested Bermuda grass, zoysia and Tifgreen lawns on all major islands. LAWN ARMYWORM (Spodoptera mauritia acronyctoides) remained pest of Tifgreen and Bermuda grass on Oahu; damaged Bermuda grass at Lihue Airport and Kalapaki, Kauai, during late fall. A GRASSHOPPER (Schistocerca vaga) spread on Oahu and was found on Kauai for first time.

General Vegetables

GIANT AFRICAN SNAIL (Achatina fulica) was medium to heavy after heavy rains on Oahu and Maui. Light, scattered damage occurred on eggplants on Maui and on tomatoes and eggplants on Oahu. Controls were necessary to protect crops during October to December. A slight larval buildup of a BEAN POD BORER (Maruca testulalis) occurred on hyacinth-beans and light numbers prevailed on beans on all major islands. TOBACCO FLEA BEETLE (Epitrix hirtipennis) caused medium foliar damage to eggplants and tomatoes on Oahu and Kauai. A PLANT BUG (Cyrtopeltis modesta) was medium and caused blossom-drop in tomato producing areas of Kauai during the fall. MELON FLY (Dacus curcubitae) was heavy on tomatoes, cantaloups and bittermelons during the fall on Hawaii Island, but light on other islands. LEAF MINER FLIES (Liriomyza spp.) and GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) were 2 of the most troublesome pests in the State, especially on tomatoes, beans, cucumbers and watermelons. SOUTHERN GREEN STINK BUG (Nezara viridula) remained light on all islands compared with previous years. Eggs and adults were parasitized by introduced beneficial insects. No significant increase of a STINK BUG (Thyanta accerra) was noted on Oahu; T. accerra was first discovered in October 1965 at Ewa. CAR-MINE SPIDER MITE (Tetranychus telarius) was heavy on beans, eggplants and watermelons on all major islands. Intensive controls were necessary from spring to early fall. BEAN BUTTERFLY (Lampides boeticus) was light to medium in beans on all islands. IMPORTED CABBAGEWORM (Pieris rapae) was light to medium damaging cabbage and other crops, particularly on Maui. DIAMONDBACK MOTH (Plutella xylostella) was medium to heavy on cabbage and broccoli on Oahu during the summer, and was found for the first time on Maui in October at 1,500 feet elevation. Heavy populations of SEED-CORN MAGGOT (Hylemya platura) severely damaged cauliflower seedlings in the Volcano area of Hawaii Island during August. CABBAGE APHID (Brevicoryne brassicae) was light on broccoli, cabbage and daikon on Maui and Oahu. Heavy populations of SPOTTED GARDEN SLUG (Limax maximus) caused moderate damage to cabbage at 2,000-4,000 feet elevations on Maui in January and February. ONION THRIPS (Thrips tabaci) was light, with scattered medium to heavy buildups occurring on Kauai and Oahu. A TARO LEAFHOPPER (Tarophagus proserpina) was light due to parasites. SOUTHERN GARDEN LEAFHOPPER (Empoasca solana) caused heavy damage to endives and chicory on Kauai in February and was light on lettuce, beets, beans, and other crops. WEST INDIAN SWEETPOTATO WEEVIL (Euscepes postfasciatus) was heavy in sweetpotatoes on Kauai in September and caused over 50 percent damage. BEET ARMYWORM (Spodoptera exigua) was light to medium on green onions on

Oahu and Kauai. LEEK MOTH (Acrolepia assectella) was light in green onions on all major islands, with a slight buildup on Hawaii Island in July. Leek moth was reported for first time on Maui in October.

Fruits and Nuts

COCONUT LEAF ROLLER (Hedylepta blackburni) was light and caused light to heavy damage to coconut trees on Kauai in February and March. A MEALYBUG (Pseudococcus obscurus) appeared heavy on passion-fruit farm on Maui in late May. Approximately 30,000 lady beetles (Cryptolaemus montrouzieri) were released on this farm in June, reducing mealybug populations by late August. Heavy populations of BARNACLE SCALE (Ceroplastes cirripediformis) appeared in passion-fruit on Kauai in January and on Maui in October and December. A LYGAEID BUG (Nysius sp.) was very heavy on young macadamia nut plantings in Kapoho, Hawaii Island, in mid-June. Scattered infestations of COTTONY-CUSHION SCALE (Icerya purchasi) ranged light to heavy on citrus throughout the State, with VEDALIA (Rodolia cardinalis) light to moderate in most infested areas. SOUTHERN GREEN STINK BUG (Nezara viridula) populations in macadamia orchards at Kohala and Kainaliu, Hawaii Island, increased during October; damage ranged 8-25 percent. ORIENTAL FRUIT FLY (Dacus dorsalis) was medium to heavy and damaged rose-apple, peach, citrus, guava, passion-fruit, mango, avocado and ripe papaya in scattered areas throughout the State. MEDITERRANEAN FRUIT FLY (Ceratitis capitata) caused serious damage to peaches at 3,500 feet elevation on Maui during July; usually serious pest below 2,000 feet in Hawaii.

Ornamentals

ORCHID WEEVILS (Orchidophilus spp.) caused moderate to heavy damage to orchids on Hawaii Island in April and in Paia and Wailuku, Maui, during June. Damage was generally light the remainder of the year. A SPIDER MITE (Eotetranychus lewisi) was severe on poinsettias on Hawaii and Oahu Islands, requiring controls in November and December. A THRIPS (Thrips hawaiiensis) was heavy on gardenia blossoms during April and May on Oahu and Hawaii Islands. Heavy populations of THREE-LINED POTATO BEETLE (Lema trilineata) in March and July caused heavy damage to cup-of-gold (Solandra hartwegi) and angel-trumpet (Datura candida) on Maui, Oahu, and Hawaii Islands.

Forest and Shade Trees

CUBAN-LAUREL THRIPS (Gynaikothrips ficorum) was under control in most areas throughout the State. Occasional buildups occurred in scattered areas on Chinese-banyan but effective biological control agents reduced populations below economic levels. Larvae of a KOU MOTH (Ethmia colonella) caused heavy damage to kou on Oahu, Kauai, Maui and Hawaii. CITRUS MEALYBUG (Planococcus citri) damaged monkey-pod trees on Oahu during early May, and on Maui in July. Infestations on both islands were controlled by a LADY BEETLE (Cryptolaemus montrouzieri). A PLATY-PODID BEETLE (Platypus externedentatus) was heavy on monkeypod trees on Kauai; numerous adults were embedded in sap exudations. Larval activity was heaviest during March and August, but damage was light. Larvae of a NOCTUID MOTH (Polodesma umbricola) were medium to heavy on monkeypod trees in Honolulu, Oahu and Kona, Hawaii Island, in June. Defoliation was 25-75 percent on Oahu and 100 percent on Hawaii Island. A medium infestation of an APHID (Neophyllaphis araucariae) occurred on commercial Norfolk Island-pine on Hawaii Island. Aphids were confined to terminals. A LYGAEID BUG (Nysius sp.) was heavy on commercially grown Norfolk Island-pine trees on Hawaii Island in June. A PLANT BUG (Orthotylus iolani) was heavy during April on wiliwili (Erythrina sp.) on Oahu, causing 80-100 percent foliar damage.

General Pests

A PLATYSPID BUG (Coptosoma xanthogramma) was medium to heavy on beans, ornamentals and shade trees, jade-vines, pigeon peas, cotton, sesban, African tulip-trees, maunaloa, coral-trees and ornamental fig trees on Oahu. CHINESE ROSE BEETLE (Adoretus sinicus) damaged various crops, ornamentals, and fruit trees on all islands, being heaviest on beans. FULLER ROSE BEETLE (Pantomorus cervinus) caused moderate to heavy damage to ornamentals, forest, shade and fruit trees, especially on Hawaii Island. A BARK BEETLE (Xylosandrus compactus) became established for first time on Hawaii Island in December and ranged light to heavy on ornamentals, fruit, forest and shade trees in Hilo. Some plants were severely damaged. Avocado trees and other plants on Kauai and Oahu were also damaged.

Man and Animals

SHEEP KED (Melophagus ovinus) was medium on wild sheep in March on the slopes of Mauna Kea at 9,000 feet on Hawaii Island. CATTLE TAIL LOUSE (Haematopinus quadripertusus) severely infested dairy cattle in Waianae, Oahu, during March. Adults of a CATTLE GRUB (Hypoderma sp.) were very noticeable at Waimea, Hawaii Island, in April. A VINEGAR FLY (Drosophila sp.) was heavy during March at Pukalani, Maui, and caused annoyance to residents. Breeding source was field of old pineapples that had been plowed under. HORN FLY (Haematobia irritans) was heavy on ranches on Kauai during September. Heavy populations of BLACK WIDOW SPIDER (Latrodectus mactans) were observed during April under Australian saltbush (Atriplex semi-baccata) at Ewa, Oahu, and under stones and boards in Kihei, Maui.

Household and Structural Insects

New infestations of FORMOSAN SUBTERRANEAN TERMITE (Coptotermes formosanus) continued to appear on Maui. Live termites were found in scattered areas of Wailuku, Kahului, and Waikapu. First discovered on Maui in 1963.

Beneficial Insects

Numerous cocoons of a BRACONID (Apanteles militaris) were found from May to July in the northwestern section of Hawaii Island. Light numbers of armyworm (Pseudaletia unipuncta) throughout the year suggest this wasp and other parasites and predators exerted strong pressure on armyworm populations. A CERAMBYCID BEETLE (Archlagocheirus funestus) larvae caused severe damage to acres of prickly-pear in Kawaihae area of Hawaii Island during early months of year. Many plants were top-killed to the ground. PUNCTURE-VINE STEM WEEVIL (Microthorus lypriformis) severely damaged puncture-vine throughout the State. Found at Molokai in October 1965, on Lanai in August 1966 and on Hawaii Island in December 1966 although no releases were made on these islands. Previously found only on Oahu, Kauai and Maui. A CERAMBYCID BEETLE (Plagiohammus spinipennis) heavily damaged lantana on Hawaii Island. Adults were numerous from April to June and larval populations were heavy from September to December. A SCARAB BEETLE (Oniticellus militaris) was recovered for the first time on Hawaii Island in November, 1965. This beetle was introduced from southern Rhodesia in 1957 to inhibit horn fly breeding. A GALL MIDGE (Zeuxidiplosis giardi) increased on Klamath-weed on Hawaii Island in July and November. A SCOLIID WASP (Campsomeris marginella modesta) was heavy in open cane fields and gardens on Kauai in September. This is a predator of oriental beetle (Anomala orientalis), once numerous and destructive in cane fields. Adults of a SCIOMYZID (Sepedon macropus) were medium in taro fields on Maui in September and October. Generally light in taro fields on Kauai. Introduced to aid in the control of Lymnaea ollula, a freshwater snail and intermediate host of cattle liverfluke. A HELIODINID MOTH (Schreckensteinia festaliella) caused moderate to heavy damage to blackberry on Maui and Kauai. Larvae of an ARCTIID MOTH (Selca brunella) heavily damaged Tibouchina spp. and Melastoma malabathricum on Hawaii Island.

Twelve new Continental United States records were reported in the Cooperative Economic Insect Report during the year. These included four species new to North America. In addition, there were 120 new State records. Those States having 5 or more included Hawaii 18, Delaware 16, California 13, Wisconsin 8, Maryland 7, Utah 6, and Texas 5. Records include related arthropods and snails as well as insects.

NEW CONTINENTAL UNITED STATES RECORDS

<u>Species</u>	<u>State</u>	<u>County</u>	<u>Probable Origin</u>	<u>Collected on</u>	<u>CEIR Page</u>	<u>Economic Importance</u>
<u>Aphis craccae</u> L. an aphid	Maine	Kennebec	Europe or Canada	wild vetch	1017	Not serious
<u>Ceratitis capitata</u> (Wied.) <u>Mediterranean fruit fly</u> 2/5/	Texas	Cameron	Central America	calamondin	588	Major
<u>Chrysopora stipella</u> (Hbn.) 1/ a gelechiid moth	Maryland	Anne Arundel	Europe	light trap	471	Apparently none
<u>Hoplocampa brevis</u> Klug 3/ pear sawfly	New York	Orange	Europe	pear	62	Apparently minor in U.S. to date
<u>Kuwania quercus</u> (Kuwana) 1/ a margarodid scale	California	Yolo	Far East	blue oak	1032	Little data available
<u>Neoxaireta spinigera</u> (Wied.) a stratiomyid fly	California	Santa Barbara	Hawaii	greenhouse	713	Unknown, gen- erally a scavenger
<u>Steneotarsonemus ananas</u> (Tyron) 1/ a tarsonemid mite	California	Orange	Hawaii	<u>Aechmea fasciata</u>	313	Some importance on pineapple
<u>Stenodiplosis bromicola</u> Mar. and Aga. 1/ a seed midge	Nebraska	Lancaster	Unknown, described in 1962	bromegrass	283	Could be serious
<u>Theba pisana</u> (Müller) 2/ white garden snail	California	Los Angeles	Unknown	--	791	Serious, gen- eral feeder
<u>Tipula paludosa</u> Meig. European crane fly	Washington	Whatcom	Canada	light traps	946	Serious on grains and grasses in parts of Europe; local damage to turf, Canada

<u>Species</u>	<u>State</u>	<u>County</u>	<u>Probable Origin</u>	<u>Collected on</u>	<u>CEIR Page</u>	<u>Economic Importance</u>
<u>Trachyphloeus aristatus</u> (Gyll) <u>a weevil</u>	Pennsylvania	Delaware Montgomery	Canada or Europe	residence	981	Hosts unknown
<u>Zeadiatraea lineolata</u> (Wlk.) <u>4/</u> <u>neotropical corn borer</u>	Texas	(southern area)	Mexico	light traps	801	Can be eco- nomic on corn

- 1/ New North America record.
- 2/ New introduction; previous infestations eradicated.
- 3/ First specimens collected 1953.
- 4/ First specimens collected 1954.
- 5/ 1966 infestation eradicated.

ADDITIONAL NEW STATE RECORDS

<u>Species</u>	<u>State</u>	<u>County</u>	<u>Collected on</u>	<u>CEIR Page</u>
<u>Aceria aloinis</u> an eriophyid mite	Hawaii	Honolulu	--	1120
<u>Aceria neocynodonis</u> Bermudagrass mite	Hawaii	Kauai Honolulu	Bermuda grass	946
<u>Aceria tulipae</u> wheat curl mite	Indiana	Lawrence	wheat	570
<u>Agrilus anxius</u> bronze birch borer	Utah	Cache	birch	1138
<u>Aleurothrixus floccosus</u> woolly whitefly	California	San Diego	citrus	1085
<u>Amalus haemorrhous</u> a weevil	Wisconsin	Rock	alfalfa	1158
<u>Amphimallon majalis</u> European chafer	Massachusetts	Middlesex Suffolk	--	710
<u>Anarhopus sydneyensis</u> an encyrtid wasp	Hawaii	Honolulu, Maui, Hawaii, Kauai	--	714
<u>Anthonomus grandis</u> complex boll weevil complex	California	Imperial	cotton	16
<u>Apanteles crambi</u> a braconid	Delaware	Sussex	pasture	418
<u>Aphis craccae</u> an aphid	New York	Essex Jefferson	--	1017
<u>Aphis ramona</u> an aphid	Utah	Box Elder	horsemint	906
<u>Apion longirostre</u> hollyhock weevil	Alabama New Jersey	Jackson Camden	hollyhock hollyhock	785 1148
<u>Argyresthia thuiella</u> arborvitae leaf miner	Delaware	New Castle	--	583
<u>Atractotomus mali</u> a plant bug	Connecticut	New Haven	apple trees	435
<u>Baris umbilicata</u> a weevil	Wisconsin	Rock Green	alfalfa	1158
<u>Barypeithes pellucidus</u> a weevil	Maryland	Allegany	--	981
<u>Brachyrhinus cribricollis</u> a weevil	Texas	Midland	--	583
<u>Calomycterus setarius</u> a Japanese weevil	Kansas	Johnson	--	1035
<u>Cardiochiles explorator</u> a braconid	Delaware	--	--	434

<u>Species</u>	<u>State</u>	<u>County</u>	<u>Collected on</u>	<u>CEIR Page</u>
<u>Carphonotus testaceus</u> a weevil	New Mexico	San Miguel	spruce	1035
<u>Centrinopus helvinus</u> a weevil	Wisconsin	Dane	light trap	1158
<u>Cerococcus kalmiae</u> a pit scale	Maryland	Prince Georges	--	994
<u>Ceutorhynchus erysimi</u> a weevil	Wisconsin	Kenosha Walworth	alfalfa alfalfa	1158
<u>Cheumatopsyche analis</u> a caddisfly	Hawaii	Honolulu	light trap	124
<u>Cleonus trivittatus</u> a weevil	Montana	Carter	<u>Oxytropis sericea</u> (locoweed)	1138
<u>Conoderus falli</u> southern potato wireworm	California	Riverside	--	755
<u>Conotrachelus naso</u> a weevil	Wisconsin	Dane	light trap	1158
<u>Conotrachelus recessus</u> a weevil	Maine	Franklin	spruce	1106
<u>Coptotermes formosanus</u> Formosan subterranean termite	Louisiana	Orleans Parish	--	555
<u>Cosmobaris americana</u> a weevil	Oregon Wisconsin	Malheur Dane	sugarbeets <u>Chenopodium album</u> (lambs- quarters)	739 981
<u>Crytochaetum iceryae</u> a cryptochaetid fly	Hawaii	Honolulu	--	820
<u>Cyrtepidomus castaneus</u> Asiatic oak weevil	Georgia South Carolina	Fannin Cherokee	timber oak	1035 1035
<u>Dialeurodes citrifolii</u> cloudy-winged whitefly	Hawaii	Hawaii	citrus	286
<u>Dioxyna sororcula</u> a tephritid fly	Hawaii	Honolulu	pigeon pea	502
<u>Ditropinotus aureoviridis</u> a torymid	California	Los Angeles	--	1051
<u>Doryctes parvus</u> a braconid	Hawaii	Honolulu	twigs	1068
<u>Eriophyes vitis</u> grape erineum mite	Ohio	Hamilton	hybrid grape	163
<u>Eucosma gloriola</u> an olethreutid moth	Michigan	Muskegon	--	439
<u>Frankliniella occidentalis</u> western flower thrips	Hawaii	Kauai Maui	carnations	906

<u>Species</u>	<u>State</u>	<u>County</u>	<u>Collected on</u>	<u>CEIR Page</u>
<u>Grapholitha eclipsana</u> an olethreutid moth	Delaware	New Castle	grass, shrubs in sweep net	175
<u>Gnorimoschema salinaris</u> a gelechiid moth	Delaware	New Castle	reared from galls on goldenrod	175
<u>Haematopinus asini</u> horse sucking louse	North Carolina	Wake	native horse	496
<u>Hemiberlesia cyanophylli</u> an armored scale	Ohio	Lake	pachysandra	906
<u>Heteromurus nitidus</u> a springtail	Utah	Box Elder	alfalfa potatoes	1035
<u>Homorus undulatus</u> a weevil	Maine	Franklin	birch	1106
<u>Hoplocampa brevis</u> pear sawfly	Rhode Island Connecticut Pennsylvania	Providence New Haven Lebanon	pear pear pear	412 387 558
<u>Hypera meles</u> clover head weevil	Oklahoma	Adair	--	1148
<u>Hypera postica</u> alfalfa weevil	Michigan Wisconsin	Livingston Kenosha	alfalfa alfalfa	558 1085
<u>Hypothenemus vulgaris</u> a bark beetle	Hawaii	Kauai Honolulu	--	1051
<u>Lecaniodiaspis prosopidis</u> a pit scale	Maryland	Anne Arundel	--	994
<u>Lecanium cerasorum</u> calico scale	Maryland	Prince Georges	silver maple	708
<u>Loewimyia n. sp.</u> an asteiid fly	Hawaii	Honolulu	--	124 151
<u>Loxosceles reclusa</u> a brown spider	Arizona	Pima	--	820
<u>Melanagromyza n. sp.</u> a leaf miner fly	Indiana	Washington	ginseng roots	1051
<u>Melanaspis bromeliae</u> an armored scale	Hawaii	Honolulu Kauai	pineapples	151
<u>Meterous n. sp.</u> a braconid	Hawaii	Maui	--	1068
<u>Microplitis croceipes</u> a braconid	Delaware	Sussex	lima beans	373
<u>Mnemonica auricyanea</u> an eriocraniid moth	Delaware	New Castle	--	392

<u>Species</u>	<u>State</u>	<u>County</u>	<u>Collected on</u>	<u>CEIR Page</u>
<u>Moneilema armata</u> a long-horned beetle	Florida	Gilchrist	cactus	1106
<u>Myoleja limata</u> a tephritid fly	Texas	Harris	<u>Ilex vomitoria</u>	684
<u>Myzocallis walshii</u> an aphid	Virginia	Shenandoah National Park	red oak	1017
<u>Nalepella halourga</u> an eriophyid mite	Illinois	De Kalb	spruce	1106
<u>Neophyllaphis podocarpi</u> an aphid	Louisiana	Orleans Parish	podocarpus	500
<u>Nepticula slingerlandella</u> a cherry leaf miner	Michigan	Oceana	--	1051
<u>Niditinea fuscipunctella</u> a clothes moth	North Carolina	Wake	--	280
<u>Oidaematophorus inquinatus</u> a plume moth	Delaware	New Castle	porch light	175
<u>Olethreutes coruscana</u> an olethreutid moth	Delaware	New Castle	grass, shrubs in sweep net	175
<u>Ophyra aenescens</u> a muscid fly	New Hampshire	Carroll	rotting eggs, manure	101
<u>Oracella acuta</u> a mealybug	Florida	Alachua	pine	842
	Pennsylvania	Fulton	pine	786
<u>Ornithoica confluenta</u> a louse fly	Louisiana	East Baton Rouge Parish	cattle egret	994
<u>Oscinella formosa</u> a chloropid fly	Hawaii	--	coconut flowers	151
<u>Pachysomoides stupidus</u> an ichneumon wasp	Maryland	Prince Georges	<u>Polistes exclamans</u> (a vespid wasp)	19
<u>Pectinophora gossypiella</u> pink bollworm	Nevada	Nye	Frick trap	1017
<u>Pemphigus junctisensoriata</u> an aphid	Utah	Weber	cottonwood	906
<u>Pentamerismus taxi</u> a false spider mite	Maryland	Allegany	taxus	175
<u>Perilampus chrysopae</u> a perilampid wasp	Delaware	Kent Sussex	-- alfalfa lima beans	739
<u>Periplaneta fuliginosa</u> smoky-brown cockroach	California	Amador	house trailer	1035

<u>Species</u>	<u>State</u>	<u>County</u>	<u>Collected on</u>	<u>CEIR Page</u>
<u>Phenacoccus solenopsis</u> a mealybug	Utah	Weber	tomatoes	1035
<u>Poecilognathos costalis</u> a trigonalid wasp	Louisiana	Allen Parish	loblolly pine bolt	148
<u>Popillia japonica</u> Japanese beetle	Alabama	Jefferson	--	846
<u>Pristiphora abbreviata</u> California pear-slug	Rhode Island	--	--	581
<u>Prociphilus tessellatus</u> woolly alder aphid	Texas	Morris	white maple	820
<u>Proctorus decipiens</u> a weevil	California	Del Norte	<u>Sambucus</u> <u>racemosa</u>	1051
<u>Proteoteras aesculana</u> an olethreutid moth	Delaware	Sussex	maple	345
<u>Pseudexentera spoliata</u> an olethreutid moth	Delaware	New Castle	sweep net in woods	175
<u>Pseudocneorhinus bifasciatus</u> a Japanese weevil	South Carolina	Chesterfield	azalea	1035
<u>Psilopa leucostoma</u> an ephydrid fly	Oregon	Umatilla	--	84
	Idaho	Canyon	--	84
	Utah	Box Elder	--	84
<u>Psylla uncatoides</u> a psyllid	Hawaii	Honolulu	--	558
<u>Ptinus variegatus</u> a spider beetle	Georgia	--	--	223
	Kentucky	--	--	223
<u>Rhabdophaga swaini</u> a cecidomyiid midge	Illinois	Lake	black hills spruce	1158
<u>Rhinacloa forticornis</u> a flea hopper	Oklahoma	Jackson	cotton	204
<u>Rumina decollata</u> a snail	California	Riverside	miscellaneous ground cover	54
<u>Serda lautana</u> an olethreutid moth	Delaware	New Castle	--	528
<u>Sitona hispidula</u> clover root weevil	Oklahoma	Adair	--	1148
<u>Sitona lineata</u> pea leaf weevil	California	Contra Costa	vetch	345
<u>Sminthurus packardii</u> a springtail	Oklahoma	Tillman	alfalfa	204

<u>Species</u>	<u>State</u>	<u>County</u>	<u>Collected on</u>	<u>CEIR Page</u>
<u>Spilococcus geraniae</u> a mealybug	California	Sacramento	<u>Artemisia</u> <u>douglasiana</u>	713
<u>Stephanitis takeyai</u> a lace bug	Delaware	New Castle	<u>Pieris</u> <u>japonica</u>	528
<u>Stephanoderes birmanus</u> a scolytid beetle	Hawaii	Kauai	<u>Litchi</u> <u>chinensis</u>	345
<u>Sternochetus lapathi</u> poplar-and-willow borer	Delaware	New Castle	willow	558
<u>Tenuipalpus meekeri</u> a false spider mite	Florida	Highlands	sawfern	1158
<u>Tegeticula</u> sp. a prodoxid moth	Hawaii	Hawaii	seed pods of <u>Yucca</u> sp.	175
<u>Tetramorium caespitum</u> pavement ant	Washington	Yakima	--	1051
<u>Therioaphis maculata</u> spotted alfalfa aphid	New Jersey	Cumberland	--	1148
<u>Trichobaris trinotata</u> a weevil	Wisconsin	Green	grass	981
<u>Trichophaga tapetzella</u> carpet moth	Delaware	New Castle	goose feathers	928
<u>Trimerotropis pallidipennis</u> a grasshopper	Hawaii	Honolulu	--	928
<u>Trogoxylon prostomoides</u> a powder-post beetle	Illinois	Winnebago	oak flooring	280
<u>Zeadiatraea grandiosella</u> southwestern corn borer	Kentucky	Ballard Calloway Carlisle Fulton Graves Hickman McCracken Marshall	corn, light trap	1017

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